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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,766	10/01/2001	Wolfgang Zirwas	1454.1082/RAG	5129
21171	7590	03/10/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			TORRES, JUAN A	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/937,766

Applicant(s)

ZIRWAS, WOLFGANG

Examiner

Juan A. Torres

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 16-26 and 29 is/are allowed.  
6) ☒ Claim(s) 27, 28 and 30 is/are rejected.  
7) ☒ Claim(s) 21 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01062005.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore:

a) A method for receiving a multicarrier signal transmitted via a transmission medium subjecting each frequency-discrete subcarrier of the multicarrier signal to subcarrier-specific disturbances caused by adjacent subcarriers in the frequency domain, the multicarrier signal having a number of frequency-discrete subcarriers and carrying inserted information converted by a multicarrier method to frequency-discrete modulation-specific modulation symbols, said method comprising: superimposing on each frequency-discrete subcarrier of the multicarrier signal predetermined test disturbances to produce a deliberately disturbed multicarrier signal; comparing disturbed modulation symbols in the deliberately disturbed multicarrier signal with undisturbed, modulation-specific modulation symbols, to derive subcarrier-specific error information; deriving correction information representing the subcarrier-specific disturbances as a function of the predetermined test disturbances and the subcarrier-specific error information; and correcting the frequency-discrete subcarriers of the multicarrier signal based on the correction information.

b) A method for receiving a multicarrier signal transmitted via a transmission medium subjecting each frequency-discrete subcarrier of the multicarrier signal to subcarrier-specific disturbances caused by adjacent subcarriers in the frequency domain, the multicarrier signal having a number of frequency-discrete subcarriers and carrying inserted information converted by a multicarrier method to frequency-discrete modulation-specific modulation symbols, said method comprising: demodulating the multicarrier signal to produce a demodulated multicarrier signal; identifying and correcting errors in the demodulated multicarrier signal using an error handling routine; and when a predetermined number of errors that cannot be corrected are found, superimposing on each frequency-discrete subcarrier of the multicarrier signal predetermined test disturbances to produce a deliberately disturbed multicarrier signal; comparing disturbed modulation symbols in the deliberately disturbed multicarrier signal with undisturbed, modulation-specific modulation symbols, to derive subcarrier-specific error information; deriving correction information representing the subcarrier-specific disturbances as a function of the predetermined test disturbances and the subcarrier-specific error information; and correcting the frequency-discrete subcarriers of the multicarrier signal based on the correction information.

Must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because:

a) In FIG 3 the delay blocks T2 and T3 are not show as indicated in page 11 paragraph [0029] of the disclosure.

b) In FIG 4 the label "ICI-Ströung" is not in English language.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.

The disclosure is objected to because of the following informalities:

- a) In page 6 the recitation MMIC is suggested to be changed to Monolithic Microwave Integrated Circuit (MMIC).
- b) In page 10 line 5 of paragraph [0024] the recitation "AE" is erroneous, it is suggested to be changed to "KE" as shown in FIG. 2.
- c) In page 10 line 6 of paragraph [0024] the recitation "AD" is erroneous, it is suggested to be changed to "ED" as shown in FIG. 2.
- d) In page 11 paragraph [0026] the recitation "AW" is erroneous, it is suggested to be changed to "AP" as shown in FIG. 2.
- e) In page 14 paragraph [0034] equation (5) the recitation " $\epsilon_{\min}$ " is erroneous, it is suggested to be changed to " $s\epsilon_{\min}$ " as shown in FIG. 4.

e) In page 17 line 5 of paragraph [0042] the recitation " $\epsilon_{\min}$ " is erroneous, it is suggested to be changed to " $s\epsilon_{\min}$ " as shown in FIG. 4.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

The claims are objected to because the lines are crowded too closely together, making reading and entry of amendments difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

Claim 21 is objected to because of the following informalities:

a) In line 2 of claim 21 the recitation "four" is not correct, it is suggested to be changed to "three", because only three terms are used in the equation.

b) In line 3 of claim 21 the recitation "four" is not correct, it is suggested to be changed to "three", because only three terms are used in the equation.

c) In line 8 of claim 21 the recitation " $s\epsilon_{1...4}$  represents the four disturbance" is not correct, it is suggested to be changed to " $s\epsilon_1$ ,  $s\epsilon_3$  and  $s\epsilon_4$  represents three disturbance", because only three terms are used in the equation.

d) In line 10 of claim 21 the recitation " $ici_{1...4}$  represents the four differently" is not correct, it is suggested to be changed to " $ici_1$ ,  $ici_3$  and  $ici_4$  represents three differently", because only three terms are used in the equation.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 27 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As per claim 27, the specification doesn't describe the case of the transmission medium is a cable-based transmission channel and a wire-based transmission channel.

As per claim 28, the specification doesn't describe the case of the transmission medium is a power supply line.

Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification doesn't disclose the: a) "means for " comparing disturbed modulation symbols in the deliberately disturbed multicarrier signal with undisturbed, modulation-specific modulation symbols, to derive subcarrier-specific error information;



b) "means for" deriving correction information representing the subcarrier-specific disturbances as a function of the predetermined test disturbances and the subcarrier-specific error information', and c) "means for" correcting the frequency-discrete subcarriers of the multicarrier signal based on the correction information (see 35 U.S.C. 112, paragraph 6).

***Allowable Subject Matter***

Claims 16-26 and 29 are allowable over prior art (if the above objections are overcome).

The following is an examiner's statement of reasons for allowance: claims 16-26 and 29 are allowed because the references cited fail to teach, as applicant has a method for receiving a multicarrier signal transmitted via a transmission medium subjecting each frequency-discrete subcarrier of the multicarrier signal to subcarrier-specific disturbances caused by adjacent subcarriers in the frequency domain, the multicarrier signal having a number of frequency-discrete subcarriers and carrying inserted information converted by a multicarrier method to frequency-discrete modulation-specific modulation symbols, the method comprising: superimposing on each frequency-discrete subcarrier of the multicarrier signal predetermined test disturbances to produce a deliberately disturbed multicarrier signal; comparing disturbed modulation symbols in the deliberately disturbed multicarrier signal with undisturbed, modulation-specific modulation symbols, to derive subcarrier-specific error information; deriving correction information representing the subcarrier-specific disturbances as a function of the predetermined test disturbances and the subcarrier-

specific error information; and correcting the frequency-discrete subcarriers of the multicarrier signal based on the correction information, as the applicant has claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Armstrong, "Polynomial cancellation coding of OFDM to reduce intercarrier interference due to Doppler spread" IEEE, GLOBECOM 98. The Bridge to Global Integration, Volume: 5, 8-12 Nov. 1998 Pages: 2771 – 2776 teaches Polynomial cancellation coding (PCC) used in OFDM systems in which the information to be transmitted is modulated onto weighted groups of subcarriers rather than onto individual subcarriers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT  
1-7-2005

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER